(b) Amendments to the Specification

Please substitute the paragraph at page 2, lines 3-20 with the following replacement paragraph.

--One proposed method among those for making a silicon oxynitride film which utilizes a heat treatment, for example, heats up a wafer under nitrogen monoxide gas atmosphere for several hours (62nd Japan Society of Applied Physics, Annual Meeting, Preprint, No. 2, page 630) so as to thermally nitride a silicon oxide film. Thermal nitriding needs ~~such~~ high temperatures such as 800°C to 1000°C, so that nitrogen easily moves in a silicon oxide film and reaches an interface between the silicon oxide film and silicon. Since diffusion differs between the silicon oxidation film and silicon, nitrogen accumulates in the interface of the silicon oxide film and silicon. Thus, a nitrogen concentration distribution in a depth direction in the silicon oxide film as a result of thermal nitriding does not locate nitrogen on a surface, and causes increased nitrogen concentration in the interface between silicon and the silicon oxide film.--

Please substitute the paragraph at page 3, lines 13-20 with the following replacement paragraph:

--For example, the heat nitriding process has a high nitrogen concentration at the interface of a silicon oxide film and silicon, and causes inferior device characteristics. In addition, processing of a wafer at a high temperature such as 800°C to

1000°C diffuses materials other than nitrogen and deteriorates device characteristics. It also takes a remarkably long process time.--

Please substitute the paragraph beginning at page 3, line 21 and ending at page 4, line 2 with the following replacement paragraph.

--On the other hand, the remote plasma process cannot obtain sufficient nitrogen active species since necessary nitrogen active species ~~decreased~~ decreases with the nitrogen ions in the plasma, and this takes a very long process time. In addition, this process cannot enhance the nitrogen surface density since the nitrogen concentration distribution in a depth direction in the silicon oxide film decreases drastically by depth.--

Please substitute the paragraph beginning at page 8, line 21 and ending at page 9, line 22, with the following replacement paragraph:

--Then, the microwave power supply supplies the plasma process chamber 1 with microwaves at 1.5 kW through the slot-cum non-terminal circle waveguide 8 and dielectric window 7, thereby generating plasma in the plasma process chamber 1. Microwaves introduced in the slot-cum non-terminal waveguide 8 are distributed to left and right sides, and ~~transmit~~ are transmitted with an in-tube wavelength longer than that in the free space. They are introduced into the plasma process chamber 1 via the dielectric window through the slot 11, and are ~~transmit~~ transmitted as a surface wave on the surface of the dielectric window 7. This surface wave interferes between adjacent slots, and forms an electric field, which generates plasma. The plasma generation part has high electron

temperature and electron density, and may effectively isolate nitrogen. The electron temperature rapidly lowers as a distance from the plasma generation part increases. Nitrogen ions in the plasma are transported to and near the substrate 2 through diffusion, and accelerated by ion sheath and collide with the substrate 2. After one minute passes, the pressure of the plasma process chamber 1 is held at the second pressure, such as 400 Pa. After an additional two minutes pass, the microwave power supply stops and supply of nitrogen gas stops. After the plasma process chamber 1 is vacuum-exhausted below 0.1 Pa, the substrate 2 is fed outside the plasma process chamber 1. The temperature of the substrate 2 has been heated by plasma up to 270°C.--

Please substitute the paragraph beginning at page 9, line 23 and ending at page 10, line 11 with the following replacement paragraph:

--The nitrogen concentration in the silicon oxide film on the surface of the substrate 2 is drastically ~~reduces~~ reduced from the depth of 1 nm when measured by SIMS, and exhibited 0.4 atm% or less at an interface between the silicon oxide film and silicon at a depth of 2 nm. According to the SIMS measurement principle, the actual nitrogen concentration at the interface between the silicon oxide film and silicon is considered to be lower than this value. According to the XPS measurement the nitrogen concentration surface density increases up to about 5 atm%, which is larger than the case where the pressure is not varied during processing. Nitrogen combines with Si into Si_3N when it is measured by the XPS. According to the measurement using an ellipsometer, optical oxide film converted thickness uniformity was 3%.--

Please substitute the paragraph at page 11, lines 20-27 with the following replacement paragraph:

--Therefore, the temperature maintained between 200°C and 400°C prevents nitrogen from dispersing in the silicon oxide film and provides an anneal effect. The substrate 2 is heated by the heater 4 and the nitrogen-ion irradiation. The substrate 2 is heated by the heater 4 before the nitriding process so that the temperature of the substrate 2 is ~~becomes~~ between 200°C and 400°C.--

Please substitute the paragraph at page 12, lines 1-16 with the following replacement paragraph:

--The temperature of the substrate 2 may be measured directly (for example, by a direct contact with a thermocouple, etc.) or indirectly (for example, by a thermometer embedded in the stage 3 to measure the temperature of the stage 3 or by radiant heat from the substrate 2 to reflect its temperature. The present invention does not preclude ~~the thermometer to~~ use of the thermocouple that directly contacts the substrate 2 and measures its temperature, but the direct contact generally might cause contamination. The temperature control mechanism includes the controller 21, a thermometer 22, (heater lines of) the heater 4, and a power supply 23 connected to the controller 21. The controller 21 controls electrification to the heater 4 so that the temperature of the substrate 2 ~~becomes~~ is between 200°C and 400°C.--

Please substitute the paragraph at page 17, lines 10-24 with the following replacement paragraph:

--As shown in FIG. 9, the flow rate of argon gas and nitrogen gas may be regulated using a mass flow controller 27, as manufactured by MKS, which is connected to the controller 21 and controls the mass flow of the gas, and a valve 28 for stopping supplying gas to the plasma process chamber 1. The controller 21 supplies gas of a desired mixture ratio to the plasma process chamber 1 by directing the desired mass flow to the mass flow controller 27. Alternatively, it closes the valve 28 when not flowing gas at all. Instead of argon gas, other ~~insert~~ inert gas, such as krypton and xenon may be used. The ~~insert~~ inert gas is not reactive and thus does not negatively affect the silicon oxide film. In addition, it is easily ionized, increases the plasma density, and ~~fastens~~ accelerates the nitriding process speed.--